

ART. XIII. THE BREEDING BIRDS OF
TARRANT COUNTY, TEXAS.

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From July, 1911, to latter June, 1914, my family lived at Fort Worth, Tarrant County, Texas. During the earlier part of this period we resided in the city proper; but during the latter two years we lived on what was called "T. C. U. Hill"—at that time a decidedly rural section about four miles southwest of the city, whereon had just been erected the first three buildings of Texas Christian University. Here I had abundant opportunity to observe birds; maintained a small aviary; and wrote bookfuls of notes upon the species I encountered. Many of these notes, particularly those relating to subspecific identification of transient forms, are now amusing rather than useful. Those relating to the activities of nesting species are for the most part accurate, however, and it is primarily upon these that the original portions of the present paper are based.

While in Fort Worth it was my good fortune to make the acquaintance of Mr. Ramon Graham, an enthusiastic oölogist and capable taxidermist, who knew the Tarrant County countryside well. Mr. Graham has published many notes upon the birds of this region in *The Oölogist*. Among his papers are three which list the species known or thought by him to breed in Tarrant County. The first of these, "Birds That Nest in Tarrant [Tarrant] Co. Texas and Notes," appeared in November, 1915.² The second list, which differed considerably from the first in some respects, and which was briefly annotated, was published in October, 1919. This list was entitled "Tarrant County, Texas Breeders."³ The third list, which was published jointly by Mr. Graham and Mr. Jake Zeitlin, also of Fort Worth,

¹ The author is indebted to the following gentlemen, all of Fort Worth, Texas, for assistance in the amassing of data pertaining to the species listed in this paper: Mr. Ramon Graham, Mr. Jake Zeitlin, Mr. Charles McLendon, and Mr. Millard Chandler.

² *The Oölogist*, XXXII, No. 11, November, 1915, 191.

³ *The Oölogist*, XXXVI, No. 10, October, 1919, 187.

appeared in July, 1921. This list was called: "List of Breeding Birds of Tarrant County, Texas." Here appeared the names of such species as were "observed in summer during the years 1915-1919."⁴

These three lists include most of the species I encountered in summer during 1911-1914. They include some species that I did not record, but that doubtless were nesting in the region at the time of my sojourn there. They include also some species and subspecies that in my opinion do not nest, and never have nested, in the Fort Worth region. Inclusion of such forms was, I believe, the result of incorrect identification of specimens, or of misconception as to breeding range.

Drastic changes have come about during the past twenty years in the Fort Worth region. The wild prairies beyond Forest Park and the Texas Christian University campus are gone. In their place now stand row upon row of residences; churches; stores; golf links. Lake Worth, a vast artificial body of water northwest of the city, now covers what twenty years ago were the forested banks of the West Fork of the Trinity River. The well known smaller birds, such as the Scissor-tailed Flycatcher, Dickcissel, Orchard Oriole, Bell's Vireo, and Lark Sparrow probably are as common today as they ever were; perhaps commoner. But larger, less common species, such as the Road-runner, are gradually being crowded farther and farther into the wilds; the nesting hawks and owls are one by one paying toll to the farmer, poultry raiser, and gunner with their lives; and new species, such as the Pied-billed Grebe, Green Heron, Purple Gallinule, Prothonotary Warbler, and Yellow-throat (*Geothlypis*) are establishing themselves at Lake Worth.

The prairie country about Fort Worth is gently rolling. Patches of prickly pear and barrel cactus; mesquite trees; waxen-flowered yuccas; horned, scaly swift, and striped race-runner lizards; velvet-legged tarantulas; scorpions: all these xerophilous plant and animal forms live in the more desertlike areas. Along the Trinity River stand forests, some of them deep and shadowy; some thin and open; some bordered with tangles of black haw and cat's claw smilax, or stretch-berry. Much of the opener country is cattle range. Here and there lie broad cotton, corn, Johnson grass, sorghum, and peanut fields. In spring the countryside is gay with a variegated carpet of wild flowers.

In the ensuing annotated list, which follows the order and, for the

⁴ *The Oölogist*, XXXVIII, No. 7, July, 1921, 93.

most part, the nomenclature of the American Ornithologists' Union's "Check-List of North American Birds" (1931), those species which are numbered are definitely known to breed in the Fort Worth region at the present time. Forms which are not numbered include some which are thought to have nested in former years; some whose presence in summer has been noted during recent years but whose nest, eggs, or young have not actually been discovered; and a few which have never, to the best of our knowledge, been seen nor taken in the Fort Worth region, but which have been listed as "breeders" in the literature at hand.

For some of the subspecific names used we are indebted to our friend Dr. Harry C. Oberholser, of the U. S. Biological Survey, who has been good enough to give the manuscript a critical reading and to assist us in our preparation of the Bibliography.

This list is not intended to be the last word upon the subject. It is, rather, a working list. I am convinced that one season's field-work in the Lake Worth region would lead to the adding of several forms that are not named here or that are included among our hypotheticals. Among such forms may be mentioned the Black Tern, Florida Gallinule, Coot, some species of rail (indeed perhaps two species), some small flycatcher, the Yellow Warbler, and perhaps one or two Fringilline species.

LIST OF SPECIES

Podilymbus podiceps podiceps (Linnaeus). PIED-BILLED GREBE.

Graham (1915e; 1919e) and Graham and Zeitlin (1921) do not include this species in their lists. Mr. Graham informs me that he and other observers have seen it about Lake Worth in summer, however, so it seems likely that it has by this time established itself as a summer resident. I am not aware that eggs or young have actually been taken. During 1911-1914 I noted it only as a transient.

1. *Butorides virescens virescens* (Linnaeus). EASTERN GREEN HERON.

Not named in Graham's first list (1915e); characterized in Graham's second list (1919e, 187) as "rare"; listed by Graham and Zeitlin (1921, 93). According to Graham (1917g, 187), the first eggs actually to be

taken in the Fort Worth region were collected by "Mr. and Mrs. Gentry" at Lake Worth, during May, 1917. The species evidently established itself promptly, for Daniels (1921, 92) tells us of finding several nests with young on May 31, 1921. Graham (1916f, 137) tells us that he noted an arrival from the south on March 27, in 1916. I noted the species several times in late summer along the Clear Fork of the Trinity River in 1911-1914, but am of the opinion that these were individuals that had wandered into the vicinity from nesting grounds elsewhere.

Nycticorax nycticorax hoactli (Gmelin). BLACK-CROWNED NIGHT HERON.

Mr. Graham writes me that he and other observers have seen this bird in summer about Lake Worth in considerable numbers. By this time it probably has established itself in colonies on some of the wooded islands. I noted it frequently in summer along the Clear Fork of the Trinity River during 1911-1914, and examined several specimens that had been shot, but I think that all of these were mid-summer wanderers.

Spatula clypeata (Linnaeus). SHOVELLER.

Mr. Zeitlin, in a personal letter dated January 28, 1922, informs me that he saw a pair of Shovellers with their young "feeding off Todd Island [in Lake Worth] on April 27, 1919." This date is exceedingly early for young birds, and the fact that Graham and Zeitlin (1921) do not include the Shoveller in their list leads me to suppose that there must have been some mistake in Mr. Zeitlin's identification. This species will in time probably establish itself at Lake Worth as a summer resident, if it has not already done so.

Aix sponsa (Linnaeus). WOOD DUCK.

Graham calls this species "rare" in his second list (1919e, 187). Graham and Zeitlin (1921) do not list it. Graham (1918a, 29) tells us that he has noted Wood Ducks in the Lake Worth region in summer on several occasions. He and Mr. Zeitlin inform me that they have seen what they thought to be young birds; but that they have never actually taken the eggs nor found an occupied nest. The drowned forests at Lake Worth should furnish an admirable nesting site for this species as well as for the Hooded Merganser, *Lophodytes cucullatus* (Linnaeus).

2. **Cathartes aura teter** Friedmann.⁵ WESTERN TURKEY VULTURE.

Common. Graham (1915e, 191; 1919e, 187) and Graham and Zeitlin (1921, 93) list it. Graham (1916b, 170; 1919a, 89, etc.); Graham and Maxon (1915, 118); Maxon (1916, 178; 1921, 177); and Moffat (1916d, 159) all tell us of eggs or young birds found in the region. According to available information eggs may be deposited as early as mid-March. Graham (1916f, 137) tells us of collecting a set of two eggs at Lake Worth on April 12, 1916. In another note (1916g, 170) he writes of finding eggs that were at the point of hatching, on June 20, 1916. I found several nests during 1911-1914, some with young birds. Concerning one of these I have written extensively (1929, 810). Eggs are usually laid in a hollow log, in a cave or niche in the rocks, or on the ground amid thick shrubbery. Mr. Graham tells me of finding two eggs "in bushes" on Vine Island, in Lake Worth, on May 1, 1916.

3. **Coragyps atratus atratus** (Bechstein).⁶ BLACK VULTURE.

Graham lists the Black Vulture as "common" (1915e, 191; 1919e, 187). Graham and Zeitlin (1921, 93) name it. According to my observations in 1911-1914, the Black Vulture and Turkey Vulture are about equally abundant in the Fort Worth region. Maxon (1921, 177) discusses nests found by him, and tells of variation in the numbers of nesting pairs from year to year (1916b, 178). Graham and Maxon (1916, 118) tell us of finding a nest with two eggs near Jefferson Crossing as early as March 19, 1915. Graham (1914b, 139) tells us of a nest found April 12, 1914.

Accipiter cooperi (Bonaparte). COOPER'S HAWK.

Rare. Not included by Graham (1915e; 1919e), but listed by Graham and Zeitlin (1921, 93). Since we are not informed as to eggs actually collected in the region, and since there is some doubt concerning certain other species of hawks listed by various observers, we are obliged to include Cooper's Hawk among our hypotheticals for the present. I recorded the species twice in summer during 1911-1914.

⁵ The Turkey Vulture of the western United States has been described as distinct from the eastern form by Friedmann, *Proc. Biol. Soc. Wash.*, 46, 188.

⁶ *C. a. atratus* (Meyer) of the A.O.U. Check-List (1931, 61) apparently is antedated by *C. a. atratus* (Bechstein). See Peters, J. L. Check-List of Birds of the World, I, 1931, 190.

4. *Buteo jamaicensis borealis*. (Gmelin).⁷ EASTERN RED-TAILED HAWK.

Red-tailed Hawks of one subspecies or another are to be found throughout the year at Fort Worth. As a rule they are commoner in winter than in summer. The nesting race, so Dr. Oberholser informs me, is eastern *borealis*. The listing of "Kriders Hawk" by Graham (1915e, 191; 1919e, 187) and Graham and Zeitlin (1921, 93) among the breeding birds of Tarrant County must therefore be considered an error and, since these observers do not list Swainson's Hawk anywhere, it is quite possible that their "Kriders Hawk" was this smaller species.

Mr. Graham tells me that he encountered a nesting pair of "light-colored red-tails at Jefferson Crossing" throughout the spring of 1914; and young birds with their parents during the following summer. Graham and Maxon (1915, 118) write of a nest and two eggs found at Jefferson Crossing on March 19, 1915, and Graham (1916e, 82) tells us of finding a nest with three eggs in an elm "fifteen feet up" on May 5, 1915.

Three species of the genus *Buteo* nest regularly about Fort Worth. Judging from my experience in 1911-1914, I should call *jamaicensis* the commonest of the three, *lineatus* considerably rarer and more local, and *swainsoni* decidedly rare. The drowned forests about Lake Worth should furnish an admirable nesting-ground for the Red-shouldered Hawk, so *lineatus* may quite possibly be the commonest *Buteo* of the region today.

5. *Buteo lineatus alleni* Ridgway. FLORIDA RED-SHOULDERED HAWK.

Graham (1915e, 191; 1919e, 187) lists this species as "rare." Graham and Zeitlin (1921, 93) list it; but we find few other references to the Red-shouldered Hawk in the literature at hand. Graham (1916f, 137) tells us of collecting a set of three eggs on March 12 and a set of two eggs on April 9, in 1916, at Lake Worth. Concerning the former set Mr. Graham has written me: "The bark-lined nest was thirty feet up in a Spanish oak that stood in the water a quarter of a mile from shore. The eggs were fresh."

Mr. Graham informs me, too, that on June 5, 1918, he observed two

⁷ *Buteo borealis borealis* of the Check-List. For change of name see A.O.U. Check-List, 1931, 65 (footnote), and Peters, J. L. Check-List of Birds of the World, I, 1931, 231.

nesting pairs of Red-shouldered Hawks at Lake Worth. During 1911-1914 I recorded the species several times during spring and summer and knew of one nesting pair along the Clear Fork of the Trinity River not far from Texas Christian University Hill.

6. *Buteo swainsoni* (Bonaparte). SWAINSON'S HAWK.

Graham does not mention this species in either of his lists (1915e; 1919e); Graham and Zeitlin (1921) do not list it; nor is there specific reference to it anywhere in the literature at hand. That the Swainson's Hawk occasionally nests in Tarrant County there can be no doubt, however. An adult female shot by Mr. Andy Elam on May 4, 1914, not far from Texas Christian University Hill, was incubating eggs.⁸

A pair of Swainson's Hawks nested in the southern part of the County not far from Mansfield in a big cottonwood tree on a farm owned by my father. The nest held half-grown young at the time of our visit there on June 26, 1914.

Parabuteo unicinctus harrisi (Audubon). HARRIS'S HAWK.

Graham names this species in both his lists, calling it "rare" (1915e, 191; 1919e, 187). Graham and Zeitlin (1921, 93) also list it. To the best of my knowledge no specimen has ever been taken in the Fort Worth region, however, so I suspect that Mr. Graham and Mr. Zeitlin may have confused the present with some other species. During 1911-1914 I heard about "Harris's Hawks" several times, but never saw one. I did record Audubon's Caracara, *Polyborus cheriway auduboni* Cassin, upon one occasion,⁹ however, so am inclined to think that Harris's Hawk may occasionally wander into Tarrant County from its nesting ground in the south.

Pandion haliaëtus carolinensis (Gmelin). AMERICAN OSPREY.

So far as I know this species has never been found nesting in the Fort Worth region. It has been seen several times in mid-summer, however, and Moffat (1916a, 13) calls attention to the fact that Lake Worth lies within its breeding range.

⁸ This specimen was presented, in 1915, to Bethany College, Bethany, West Virginia, where it may now be seen. It is in what often is called the "normal phase" of plumage.

⁹ In early October, 1913. Mr. Graham writes me that he has recorded Audubon's Caracara at least once in the Fort Worth region. In late March, 1910, he shot one while collecting hawk eggs.

7. *Falco sparverius sparverius* Linnaeus. EASTERN SPARROW HAWK.

Graham (1919e, 188) lists this species, calling it "rare." Graham and Zeitlin (1921) do not include it, however. During 1911-1914 I saw it frequently in winter, and observed, throughout the spring of 1913, a pair which had a nest in a dead oak about two miles west of the Texas Christian University campus. We saw the young birds on several occasions, collecting a male on June 6.

Tympanuchus cupido americanus (Reichenbach). GREATER PRAIRIE CHICKEN.

The Prairie Chicken is not found about Fort Worth today. According to Rowe (1885, 243) it must have been present in considerable numbers fifty years ago. While I have not examined any specimen taken in past years it is reasonable to suppose that the present species, rather than *T. pallidicinctus* (Ridgway), ranged the open country of north central Texas in frontier days.

8. *Colinus virginianus virginianus* (Linnaeus). EASTERN BOB-WHITE.

Uncommon and local permanent resident. Listed by Graham (1915e, 191) as the "Texas Bob-white," who characterizes it as "scarce" (1919e, 188). Listed by Graham and Zeitlin (1921, 93). I noted it infrequently during 1911-1914, but did not find a nest. Mr. Graham tells me that he encountered four nesting pairs about Lake Worth during June, 1918.

Meleagris gallopavo intermedia Sennett. RIO GRANDE WILD TURKEY.

I have been told by several persons that Wild Turkeys were formerly to be found in the wooded country about Fort Worth. In substantiation of such reports we find a note in an early issue of *American Field* concerning "Christmas Turkeys and Other Turkeys."¹⁰ I do not know of any specimen actually taken in Tarrant County that is extant today.

9. *Ionornis martinica* (Linnaeus). PURPLE GALLINULE.

This species, which I did not once record during 1911-1914, and which is not listed by Graham (1915e; 1919e) nor by Graham and Zeitlin (1921), now nests at Lake Worth. A nest and five eggs were found on July 12, 1925, by Mr. Verlain Daniels, who has published a

¹⁰ Christmas Turkeys and Other Turkeys. Jordan, *American Field*, 50, No. 26, December 26, 1898.

note upon the discovery (1926, 16). The Purple Gallinule is probably rare and decidedly local in Tarrant County, Texas.

Gallinula chloropus cachinnans (Bangs). FLORIDA GALLINULE.

This gallinule quite possibly has established itself as a summer resident at Lake Worth by this time, though I have not been told of any recent midsummer records, and there is no reference to the species in the literature at hand.

Fulica americana americana Gmelin. AMERICAN COOT.

Not listed by Graham (1915e; 1919e) nor by Graham and Zeitlin (1921). Both Mr. Graham and Mr. Zeitlin write me, however, that Coots are to be seen at Lake Worth in midsummer, so it is highly probable that the species nests regularly in Tarrant County today.

10. ***Oxyechus vociferus vociferus*** (Linnaeus). NORTHERN KILLDEER.

Common permanent resident, often more abundant in winter than in summer. Listed as "common" by Graham (1919e, 188), who writes of finding a nest with four eggs on April 21, 1915; and of a nest "sunk in the ground" and "lined with small gravel" found on May 4, 1915 (1916e, 81). Mr. Graham informs me that the former of these was found near Frisco, the latter at Jefferson Crossing; and that during the summer of 1918 he observed one nesting pair of Killdeers near his camp at Lake Worth.

11. ***Zenaidura macroura marginella*** (Woodhouse). WESTERN MOURNING DOVE.

The Mourning Dove is abundant the year round. Whether some winter birds are subspecifically different from summer birds I cannot say. Listed by Graham (1919e, 188) as "common." During 1911-1914 I found many nests, most of them on low, horizontal branches; several on the ground; and three in old Mockingbird nests. Several sets of fresh eggs were discovered in early or mid-April. Two fresh eggs found August 10, 1912, were probably of a second brood.

Mr. Graham, who informs me that he has found small young in the nest as late as mid-September, has published an interesting note on a set of three Mourning Dove eggs found June 11, 1910, in a deserted grackle nest; and of another grackle nest that held two dove eggs and three grackle eggs, found June 12, 1910 (1915h, 211). He has published notes also upon nests found April 14, 1915 (1916e, 81).

12. *Coccyzus americanus americanus* (Linnaeus). EASTERN YELLOW-BILLED CUCKOO.

Listed by Graham (1915e, 191), who characterizes it as "common" (1919e, 187). Listed also by Graham and Zeitlin (1921, 93). During 1911-1914 I found it common both as a summer resident and as a transient. In 1914 I recorded it first on May 23, when many were heard calling; and found a nest with three fresh eggs (perhaps an incomplete set) on June 7. Mr. Graham writes me of finding a nest with four slightly incubated eggs on May 21, 1916; another with three fresh eggs on June 3, 1916; and another with three heavily incubated eggs on July 8, 1916.

13. *Geococcyx californianus* (Lesson). ROAD-RUNNER.

Fairly common permanent resident, probably not so common as formerly. Listed by Graham (1915e, 191), who characterizes it as "not common" (1919e, 187). Listed also by Graham and Zeitlin (1921, 93). During 1911-1914 I found several nests, concerning some of which I have written at considerable length (1914, 141; 1922, 6). Mr. Graham informs me that he found a nest with five somewhat incubated eggs on April 15, 1916; one with four fresh eggs on April 16, 1916; and one with four fresh eggs on April 27, 1915. He is of the opinion, as am I also, that unusually large sets of eggs are the product of two or more females (1915d, 182).

14. *Tyto alba pratincola* (Bonaparte.) AMERICAN BARN OWL.

Graham (1915e, 191) lists this species, calling it "common" (1919e, 187). Graham and Zeitlin (1921, 93) list it. During 1911-1914 I found it only fairly common, recording it at all seasons of the year, and discovering a nest with five small young in the "first woods" beyond Texas Christian University Hill on April 25, 1914. Graham and Maxon (1915, 118) tell us of early spring expeditions after the eggs of this and other species. Graham (1914b, 138) tells of a set of five eggs taken in early April, 1914, from a "large hole" near a spring, and writes entertainingly of "fishing" for Barn Owls at Lake Worth (1917a, 18). Mr. Graham informs me that he found a nest with two heavily incubated eggs on April 9, 1916, at Lake Worth.

15. *Otus asio hasbroucki* (Ridgway). HASBROUCK'S SCREECH OWL.

Common permanent resident, especially about Lake Worth; listed as "Texas Screech Owl" (1915, 191) and as "Screech Owl" (1919e,

188) by Graham, who calls it "common." Listed as "Screech Owl" by Graham and Zeitlin (1921, 93). The breeding Screech Owl of the Fort Worth region has been definitely identified as *hasbroucki*.¹¹

During 1911-1914 I found several nests about Forest Park and in the woodlands south of Texas Christian University, among these one with four fresh eggs in a high stub not far from the Clear Fork of the Trinity River, on April 21, 1914; and one with two small young, on June 2, 1914. In this nest were the remains of a male Cardinal.

Graham describes several nests found by him. In the first of these notes (1914b, 138) he tells of a set of four fresh eggs found in early April, 1914. In another (1916e, 81) he writes of a nest with four fresh eggs [along Sycamore Creek] found on April 20, 1915; of a nest with four eggs found the following day; and of nests with three eggs found April 27 and April 30, 1915. In another (1916f, 137; 1916g, 170) he relates of finding a nest which held one egg on March 24 and four eggs on April 3, 1916. In another (1919a, 89) he tells of sets collected March 30, 1919. In another he describes a set of five heavily incubated eggs found April 7, 1919 (1919b, 97).

I reared two young Hasbrouck's Screech Owls during the spring of 1914, taking them with me to West Virginia where one was liberated near Bethany, Brooke County, in late September of the same year.

16. *Bubo virginianus virginianus* (Gmelin). EASTERN HORNED OWL.

Rare permanent resident. Listed by Graham (1915e, 191), who calls it "rare" (1919e, 188); and by Graham and Zeitlin (1921, 93). A pair nested along the Clear Fork of the Trinity River about three miles from our house during the early spring of 1913. Graham and Maxon (1915, 118) tell us of finding two half-grown young in an old hawk's nest at Jefferson Crossing on March 18, 1915. These observers found another nest on the following day, this one containing three heavily incubated eggs. Graham (1916e, 81) writes of these same nests in a separate note, and mentions "half-grown Horned Owls" seen on February 15, 1920.¹² Mr. Graham informs me that he noted one pair of Horned Owls at Lake Worth on June 5, 1918.

¹¹ See original description, *Bull. U. S. Nat. Mus.*, No. 50, Pt. IV, 1914, 694. The type locality of the form is Palo Pinto County, Texas.

¹² Graham, Ramon. *Texas Migration Notes. Oölogist*, XXXVII, No. 3 March, 1920, 34.

17. *Speotyto cunicularia hypugaea* (Bonaparte). WESTERN BURROWING OWL.

Not common anywhere about Fort Worth, but to be observed at all seasons and undoubtedly nests occasionally. Both Mr. Graham and myself have seen mated pairs at their burrows, though neither of us has actually taken the eggs or young. Graham (1915e, 191; 1919e, 188) lists the Burrowing Owl, calling it "rare." Graham and Zeitlin (1921, 93), however, do not include it. I have published a note upon an albinistic specimen collected during my sojourn in the region (1912b, 184).

18. *Strix varia georgica* Latham.¹³ FLORIDA BARRED OWL.

Permanent resident, somewhat commoner than the Horned Owl. Listed as "Texas Barred Owl" by Graham (1915e, 191), who calls it "rare" (1919e, 188). Moffat (1916, 147) and Graham (1916f, 137) tell us of finding a nest with three slightly incubated eggs at Lake Worth on March 12, 1916. Graham and Maxon (1915, 118) tell us of finding a nest with two eggs at Jefferson Crossing on March 19, 1915. Graham (1916e, 81) writes of this same nest in a separate account. During 1911-1914 I kept an adult Barred Owl in captivity for several months.

19. *Asio otus wilsonianus* (Lesson).¹⁴ AMERICAN LONG-EARED OWL.

I never saw this bird alive about Fort Worth, but my friend Mr. Millard Chandler shot one during the late autumn of 1912, and Mr. Graham informs me that he found a nest near Jefferson Crossing bridge along the West Fork of the Trinity River in the spring of 1910 "in a hole in a washed-out sand bank." Graham (1915e, 191; 1919e, 188) lists the species, calling it "rare." Graham and Zeitlin (1921, 93) also include it. It is doubtless very local in distribution.

Asio flammeus flammeus (Pontoppidan). NORTHERN SHORT-EARED OWL.

Graham (1915e, 191) names this owl in his first list of the breeding birds of Tarrant County, and speaks of Short-eared Owls observed to be occupying "dark holes and caves" (1914a, 31). He does not name it in his second list (1919e), however; nor do Graham and Zeitlin

¹³ *Strix varia alleni* Ridgway of the Check-List. For change of name see Kelso, Leon. The Forgotten Georgian Owl. *Auk*, 1933, 106, 107.

¹⁴ *Asio wilsonianus* of the Check-List. For *A. o. wilsonianus* see Oberholser, H. C. *Auk*, 1922, 72-78.

(1921) include it. I observed the species several times in winter during 1911-1914, but never in summer. Graham probably assumed that Short-eared Owls nested in the region because he observed transient individuals late in spring.

20. *Antrostomus carolinensis* (Gmelin). CHUCK-WILL'S-WIDOW.

Not listed by Graham (1915e; 1919e) nor by Graham and Zeitlin (1921). I never saw the species in the immediate vicinity of Fort Worth, though I found it nesting in some numbers, and collected one specimen, north of Aquilla, Hill County, about fifty miles south of Fort Worth, during the summer of 1913. Mr. Graham writes me that it now summers about Lake Worth; that he recorded a spring arrival from the South on April 16, 1916; and that on June 5, 1918, he noted four individuals, thought to be two mated pairs, in the vicinity of his encampment at Lake Worth.

Antrostomus vociferus vociferus (Wilson). EASTERN WHIP-POOR-WILL.

Graham (1915e, 191) names this in his first list of the breeding birds of Tarrant County. He does not include it in his second list (1919e), however; and the fact that he and Zeitlin (1921, 93) include it but do not include the Chuck-will's-widow, causes me to wonder if these observers may not have confused the two species to some extent. Graham (1914b, 138; 1919b, 97) tells us of hearing Whip-poor-wills about his camp during April and May. I recall examining a Whip-poor-will that had been shot by a negro south of Fort Worth in May, 1913. Nevertheless I prefer not to give the species full ranking here until definite data upon eggs or young birds have been obtained.

Phalaenoptilus nuttalli nuttalli (Audubon). NUTTALL'S POOR-WILL.

I did not record this species during the period of my residence at Fort Worth; nor does Graham (1915e; 1919e) include it in his earlier lists. That the species is sometimes found in Tarrant County there can be no doubt, however. Graham (1914b, 139) tells us of collecting a specimen on April 14, 1914. Graham and Zeitlin (1921, 93) include the species in their list. Mr. Graham writes me that he has noted Poor-wills in the northeastern corner of the County on several occasions; and Mr. Zeitlin informs me that he has recorded the species in midsummer.

21. *Chordeiles minor howelli* Oberholser. HOWELL'S NIGHTHAWK.

The Nighthawk is sometimes exceedingly abundant as a transient about Fort Worth. As a summer resident it is not nearly so common, however, and it is decidedly local. Two or more subspecies probably are to be encountered during the course of the year.

Graham (1915e, 191) names the "Texas Nighthawk" in his first list. In his second list (1919e, 187) he names the "Nighthawk," calling it "common." Graham and Zeitlin (1921, 93) list the species. Mr. Graham informs me that he found two heavily incubated eggs along a road west of Fort Worth on June 27, 1916; observed two half-grown young on a gravel hill east of Katy Lake on June 28, 1916; and encountered what he thought to be about ten nesting pairs about Lake Worth on June 5, 1918. During 1911-1914 I noted the Nighthawk in summer on several occasions but did not discover either eggs or young.

***Chordeiles acutipennis texensis* Lawrence. TEXAS NIGHTHAWK.**

Graham (1915e, 191) names this form in his first list of the breeding birds of Tarrant County, and writes of "Texas Night-hawk or Bull Bat" nests (1914a, 30). He probably did not, at the time of writing these notes, realize that Nighthawks found in Texas were not necessarily *Texas* Nighthawks. My own notes in those days were full of similar mistakes. Maxon (1916, 178) also writes of the "Texan Nighthawk," and his remarks also obviously apply to *C. minor* and not to *C. acutipennis*.

22. *Archilochus colubris* (Linnaeus). RUBY-THROATED HUMMING-BIRD.

Uncommon as a nesting species; commoner as a transient. I took specimens in midsummer at Fort Worth and in the vicinity of Aquilla, Hill County, during 1911-1914. Graham (1915e; 1919e) does not include any hummingbird in his earlier lists; but Graham and Zeitlin (1921, 93) name the present species, and Graham has published several notes upon hummingbird nests. What appears to be the first of these relates of a "Black-chinned Hummer's" nest containing one young bird, discovered June 27, 1915, at Lake Worth (1916e, 82). Although the parent birds were not obtained, this may indeed be a breeding record for *A. alexandri*, a western species which ranges eastward in summer, so Dr. Oberholser informs me, occasionally as far as east central Texas. Another note tells us of a nest with two eggs built on a pendant dead

branch, found June 19, 1916 (1916g, 170). Another informs us that hummingbirds were "laying in full blast" on May 15, 1919 (1919b, 97). These comments pertain, we believe, to *A. colubris*.

Mr. Graham writes me that he found a hummingbird nest containing an egg and young bird at Ten Mile Bridge on June 22, 1915; and a nest just ready for eggs on June 23, 1916.

Archilochus alexandri (Bourcier and Mulsant). BLACK-CHINNED HUMMINGBIRD.

I did not record this species during 1911-1914. Graham (1915e; 1919e) does not mention it; nor do Graham and Zeitlin (1921) list it. As stated above, however, Graham (1916e, 82) writes of a "Black Chinned Hummer" nest found June 27, 1915, at Lake Worth. This record we are obliged to question in view of the fact that specimens of the parent birds were not obtained.

23. Megaceryle alcyon alcyon (Linnaeus). BELTED KINGFISHER.

Graham (1915e, 191) lists this species, calling it "not plentiful" (1919e, 187). Graham and Zeitlin (1921, 93) include it in their list. Graham tells us of unsuccessful attempts to collect eggs during the spring of 1915 (1915f, 191); of a nest in process of construction found by Mr. Earl Moffat at Lake Worth in mid-March, 1919 (1919a, 89); of five burrows observed about Lake Worth in March, April, and May, 1919; and of a set of seven heavily incubated eggs collected at Goat Island, Lake Worth, on May 16, 1919 (1919b, 97). I saw Belted Kingfishers along the Clear Fork of the Trinity River repeatedly in mid-summer during 1911-1914, but did not discover a nest.

24. Colaptes auratus luteus Bangs. NORTHERN FLICKER.

The Flicker is common as a transient and winter resident at Fort Worth. *Colaptes auratus* × *Colaptes cafer* hybrids are not infrequently to be encountered during fall, winter and spring. Breeding birds are not, so far as we have observed, hybrids, however, and the species found in summer is *auratus*, not *cafer*. Graham (1915e) does not include the Flicker in his first list. In his second list (1919e, 187) he calls it "rare." Graham and Zeitlin (1921, 93) list it. The only nesting birds I observed during 1911-1914 were a pair that frequented a rocky ridge about two miles west of Texas Christian University Hill. These I saw repeatedly during May and June, 1914.

25. **Ceophloeus pileatus pileatus** (Linnaeus). SOUTHERN PILEATED WOODPECKER.

Rare. Graham (1915e) does not include it in his first list; in his second list (1919e, 187) he calls it "nearly all gone"; Graham and Zeitlin (1921, 93) include it. I did not find a nest in the immediate vicinity of Fort Worth during 1911-1914, but observed a pair along the Clear Fork of the Trinity River several times during the summer of 1913, and found the species fairly common just to the northward of Aquilla, Hill County, in a region about fifty miles south of Fort Worth. Mr. Graham tells me that in an earlier year (probably about 1910) he had knowledge of six nesting pairs in the vicinity of Jefferson Crossing.

26. **Centurus carolinus** (Linnaeus). RED-BELLIED WOODPECKER.

Not common. Graham does not include it in his earlier lists (1915e; 1919e). Graham and Zeitlin (1921, 93) name it, however. Graham (1916f, 137) tells us of a nest with four fresh eggs found April 9, 1916, at Lake Worth. I did not find the species actually nesting at Forest Park or near Texas Christian University, but collected a nest and three heavily incubated eggs at Mansfield, in the southeastern corner of the County, on June 26, 1914.

27. **Melanerpes erythrocephalus erythrocephalus** (Linnaeus). EASTERN RED-HEADED WOODPECKER.

Sometimes abundant as a transient, and in winter; usually much less common in summer. Graham (1915e, 191) lists it, characterizing it as "common" (1919e, 187). Graham and Zeitlin (1921, 93) list it. Graham (1919b, 97) tells us of finding a nest with one egg on May 16, 1919. Several pairs nested during 1913 and 1914 in the vicinity of Forest Park and Texas Christian University; and during the summer of 1912 I saw parent birds feeding their young at the edge of the city of Fort Worth, not far from the corner of Sixth and Magnolia Avenues.

28. **Dryobates villosus villosus** (Linnaeus). EASTERN HAIRY WOODPECKER.

This widely ranging species, which is not listed by Graham (1915e; 1919e) nor by Graham and Zeitlin (1921), I considered quite rare in the Fort Worth region, although I recorded it several times in mid-summer during 1911-1914, and collected a male in the red-crowned

plumage of the juvenal on July 8, 1913. It is interesting to note that Isely and his fellow observers have recently been recording this species in winter with considerable regularity (See *Bird-Lore*, Christmas Bird Census, 1926, etc.)

29. ***Dryobates pubescens pubescens*** (Linnaeus). SOUTHERN DOWNY WOODPECKER.

Graham (1915e, 191) lists this species, calling it "not plentiful" (1919e, 187); Graham and Zeitlin (1921, 93) list it. I considered the Downy Woodpecker rare about Forest Park and Texas Christian University during 1911-1914. Graham (1916f, 137) writes of a nest containing small young, found at Lake Worth on April 16, 1916.

30. ***Dryobates scalaris symplectus*** Oberholser. TEXAS LADDER-BACKED WOODPECKER.

This species is rare at Fort Worth. Graham (1915e; 1919e) does not mention it, nor is it listed by Graham and Zeitlin (1921). I recorded it several times during 1911-1914, and found a nest along a stream known as Howard's Branch, west of Texas Christian University, during the summer of 1913. I saw the parent birds performing strange courtship antics during the spring of that year, and watched them feeding young in the nest. The cavity was about twenty feet from the ground, the entrance on the under side of a strongly leaning stub. Mr. Zeitlin informs me that he has noted the species several times. Isely and his fellow observers (1926, etc.) include it in their Bird-Lore Christmas-census list from the Fort Worth region as a rule.

Dryobates borealis (Vieillot). RED-COCKADED WOODPECKER.

I took this species once, a male, on January 30, 1914, in a dense patch of woods about three miles south of Texas Christian University, along the Clear Fork of the Trinity River. Since the Red-cockaded Woodpecker is thought to be relatively non-migratory its presence at any season of the year in a given region suggests the possibility that it may occasionally nest.

31. ***Tyrannus tyrannus tyrannus*** (Linnaeus). EASTERN KINGBIRD.

Graham (1915e) does not include this species in his earliest list. In his second list he names it, calling it "rare" (1919e, 187). Graham and Zeitlin (1921, 93) list it. I noted it several times in 1911-1914,

most frequently during the period of migration. A pair nested in a bois d'arc hedge near Handley during the summer of 1912. Mr. Graham tells me that he noted arrivals from the South on May 2, in 1916. In 1914 I saw Kingbirds repeatedly from May 4 to 10, but encountered no nesting pairs that season. Mr. Zeitlin informs me that the species is gradually establishing itself at Lake Worth, where it nests in the tops of dead trees sometimes at considerable distance from the shore.

32. **Tyrannus verticalis** Say. ARKANSAS KINGBIRD.

Rare; not listed by Graham (1915e; 1919e) nor by Graham and Zeitlin (1921). Its inclusion here is based upon a nest found during the summer of 1911 in a small sycamore tree in a residential part of the city and reported to me by my friend Mr. Charles McLendon, who described the yellow breasts of the parent birds. I took the species near Forest Park twice during the period of migration (one of these a male, May 1, 1914), but did not encounter a nesting pair.

33. **Muscivora forficata** (Gmelin). SCISSOR-TAILED FLYCATCHER.

Common. All ornithologists who have written of the region include it in their lists, and several, notably Litsey (1911, 106) and Graham (1916b, 33), have devoted papers especially to it. During the spring of 1915 Mr. Graham and his friend Mr. Emmett Maxon found a full set of eggs (four) first on May 16, and examined another nest containing four eggs on May 23 (Graham, 1916e, 82). Graham (1919b, 97) tells us of recording an arrival from the South on March 30, 1919; and of finding a pair and their partly finished nest on May 16 of that year. This observer tells us too of a nest that was built in seven days (1924a, 88).

During 1911-1914 I observed the species repeatedly in summer, my earliest date for nesting operations being May 13, 1914 (partly finished nest). Most of the nests I found were in mesquite, hackberry, or sycamore trees; but several were on telegraph poles, and one was built upon an English Sparrow's nest in a shade tree on the Texas Christian University campus. Mr. Graham has written me of finding several nests with fresh eggs on June 3, 1916; and of seeing a flock of transient birds on September 7 of the same year.

During the spring of 1914 I kept a young Scissor-tail in captivity for several weeks, finding that it ate small fruits, lizards, and spiders as readily as it did insects.

34. **Myiarchus crinitus boreus** Bangs. NORTHERN CRESTED FLY-CATCHER.

Fairly common in wooded sections. Listed by Graham (1915e, 191), who characterizes it as "common" (1919e, 187); and by Graham and Zeitlin (1921, 93). Graham (1919b, 97) tells us of a pair that were mating on May 7, 1919. Mr. Graham informs me that he noted arrivals from the South on April 16, 1916; and that on June 5, 1918 he encountered two nesting pairs at Lake Worth. During 1911-1914 I discovered two nests—one in a pecan tree at Forest Park, June 10, 1913; the other at Mansfield, in the southeastern corner of Tarrant County, with four young birds, June 26, 1914.

35. **Sayornis phoebe** (Latham). EASTERN PHOEBE.

Graham (1915e) does not include the Phoebe in his first list, but characterizes it as "rare" in his second list (1919e, 187); and Graham and Zeitlin (1921, 93) name it. Inclusion of the species here is based primarily upon a set of four eggs taken April 12, 1915 by Graham, who has published two notes upon the discovery (1916c, 34; 1916e, 81). Mr. Zeitlin informs me that he found a nest near a spring at Jefferson Crossing, on April 16, 1922. Mr. Graham writes me that nowadays one or two nesting pairs are customarily to be found about Lake Worth. I did not record the Phoebe in midsummer during 1911-1914, but noted it several times as a transient.

36. **Stelgidopteryx ruficollis serripennis** (Audubon). ROUGH-WINGED SWALLOW.

Not common, and very local; not included in Graham's earlier lists (1915e; 1919e), but listed by Graham and Zeitlin (1921, 93). I noted it in summer along the Clear Fork of the Trinity River, seeing young birds with their parents on two occasions in July, 1913; but did not discover a nest containing eggs.

37. **Progne subis subis** (Linnaeus). EASTERN PURPLE MARTIN.

Fairly common, but local; named by Graham (1915e, 191) in his first list, but not in his second (1919e); included by Graham and Zeitlin (1921, 93). During the spring of 1914 two pairs of Martins lingered for some time about a crude house I had hastily erected for them. They finally built bulky nests, but did not, for some reason, lay any eggs. I think the supports of the house may have been insecure.

I saw several Martins feeding their young about farms near Aquilla, Hill County, about fifty miles south of Fort Worth, during the summer of 1913.

38. *Cyanocitta cristata cyanotephra* Sutton.¹⁵ SOUTHWESTERN BLUE JAY.

The Blue Jay is listed by Graham (1915e, 191; 1919e, 187) and by Graham and Zeitlin (1921, 93). I noted it in summer at several points in the region, notably at Forest Park where, on June 14, 1914, I observed a pair building their nest; and at Mansfield where, on June 26, 1914, I found a nest with three young in a shade tree in the heart of town. Mr. Graham tells me that he noted two pairs of Blue Jays about his camp at Lake Worth during the spring of 1918. He has published an interesting note on destruction of Summer Tanager nests by jays (1924a, 88).

39. *Corvus brachyrhynchos brachyrhynchos* Brehm. EASTERN CROW.

Common; listed by Graham (1915e, 191; 1919e, 187) and by Graham and Zeitlin (1921, 93). Graham and Maxon (1915, 118) tell us of "six fresh crow nests" found along the Trinity River on March 10, 1915. Graham (1916e, 81) tells us of many nests found during the spring of 1915, the first with six fresh eggs on March 6, the last with heavily incubated eggs (four in one nest, five in another) on April 27. During 1911-1914 I found scores of nests, most of them in live oaks. One found April 20, 1914, held six heavily incubated eggs. On June 5, 1914 I found a blue-eyed young Crow, barely able to fly.

40. *Penthestes carolinensis agilis* (Sennett). PLUMBEOUS CHICKADEE.

The "Chickadee" is listed by Graham (1915e, 191), who characterizes it as "common" (1919e, 188); and by Graham and Zeitlin (1921, 93). During 1911-1914 I found many nests, notably one with six fresh eggs, April 16, 1914, near Forest Park. Graham has published several notes upon the species, one telling of a nest with eight eggs found April 3, 1916 (1916h, 189); one calling attention to the fearlessness of parent birds at the nest (1917d, 84); one concerning nests found near Camp Graham at Lake Worth (1919a, 89); one describing a nest in detail (1919d, 127); and one telling of a nest and seven eggs found

¹⁵ The Blue Jay of western Oklahoma, eastern Colorado, etc., has been found to be distinct from more easterly races. See Sutton, G. M. *Auk*, 1935, 176.

at Lake Worth on March 25, 1923 (1923a, 58). The Plumbeous Chickadee is one of the noticeable birds of the winter woodlands; it is less noticeable during the nesting season.

41. **Baeolophus bicolor** (Linnaeus). TUFTED TITMOUSE.

Common. Listed by Graham (1915e, 191; 1919e, 188) and by Graham and Zeitlin (1921, 93). Graham tells us of a nest containing "six well incubated eggs" in a hollow "a foot deep and facing the sky," found April 16, 1916 at Lake Worth (1916f, 137); of nests with five and four eggs found respectively on April 12 and May 5, 1915 (1916e, 81, 82); and of an incubating parent bird that hissed in the manner of a snake (1917e, 58). I found several nests during 1911-1914, among them one with young just leaving, at Mansfield, on June 26, 1914.

42. **Thryomanes bewicki cryptus** Oberholser. TEXAS BEWICK'S WREN.

Fairly common. Graham (1915e, 191) names both the "Bewick's Wren" and the "Texas Bewick's Wren" in his first list; in his second list he names only the latter form, calling it "common" (1919e, 187). Graham and Zeitlin include "Bewick's Wren." Graham (1914b, 139) tells us of a nest containing four eggs found April 14, 1914. In another note (1917g, 187) he tells us of a "wren nest" with five young (date?) in a coffee can at his encampment at Lake Worth. Again (1919b, 97), he tells of an occupied nest in a birdhouse at his camp, May 10, 1919. Mr. Graham writes me of a nest with six young found June 26, 1916 in a hollow branch, nine feet up, in a dead elm standing in the water at Lake Worth. During 1911-1914 I found the Texas Bewick's Wren not very common about Forest Park and Texas Christian University.

43. **Thryothorus ludovicianus ludovicianus** (Latham). CAROLINA WREN.

Calling it "Lomita Wren," Graham (1915e, 191) includes this species in his earliest list. In his second list (1919e, 187) he names the "Carolina Wren," characterizing it as "common." Graham and Zeitlin (1921, 93) include the species. On April 18, 1912, I found a nest with five fresh eggs among the vine covered branches of a fallen tree along the east bank of the Clear Fork of the Trinity River. Mr. Graham tells me that he found a nest which held three eggs on April 9 and five eggs on April 16, 1916, at Lake Worth; and that he encount-

ered three nesting pairs about his camp there in June, 1918. He has published an entertaining note concerning the materials composing a Carolina Wren's nest (1922b, 175).

Thryothorus ludovicianus lomitensis (Sennett). LOMITA WREN.

Inclusion of the Lomita Wren by Graham (1915e, 191), as noted above, is obviously a mistake. This subspecies ranges only far south of Fort Worth (see A. O. U. Check-List, 1931, 247).

44. ***Mimus polyglottos polyglottos*** (Linnaeus). EASTERN MOCKING-BIRD.

Common permanent resident. Listed by Graham (1915e, 191; 1919e, 187) and by Graham and Zeitlin (1921, 93). Graham (1916e, 81, 82) tells us of several nests, each with a set of four eggs, found April 20, 21, and 30 and May 5 and 13, 1915; and of observing on May 21, 1916, a young Mockingbird that was being swallowed by a green snake (1917b, 33 and 54). During 1911-1914 I found many Mockingbird nests, among them one with four fresh eggs, June 15, 1914; and one with six rather heavily incubated eggs, May 18, 1914. Mr. Graham tells me that on June 26, 1916, along a bois d'arc hedge west of the city, he found five Mockingbird nests all with well developed young.

45. ***Turdus migratorius achrusterus*** (Batchelder). SOUTHERN ROBIN.

Graham (1915e; 1919e) and Graham and Zeitlin (1921) do not include this species in their lists. Daniels (1926, 16) tells us of finding a nest with four eggs during the spring of 1925, however, and of seeing young thought to be of the second brood, and possibly of the same parentage, later in the season. I did not encounter the Robin in summer during 1911-1914, but noted it repeatedly in winter.

46. ***Sialia sialis sialis*** (Linnaeus). EASTERN BLUEBIRD.

Fairly common in summer. Graham (1915e, 191) lists it, calling it "common" (1919e, 188). Graham and Zeitlin (1921, 93) list it. Graham (1916e, 81) tells us of a nest and four eggs found April 9, 1915, in a hole in a dead tree "eight feet up." During the spring of 1913 a pair nested not far from the Texas Christian University campus. The male of this pair was accidentally killed on April 3, on which date there were small young in the nest. Mr. Graham informs me that he

encountered two nesting pairs of Bluebirds at Lake Worth during early June, 1918.

47. *Poliophtila caerulea caerulea* (Linnaeus). EASTERN BLUE-GRAY GNATCATCHER.

Not named by Graham (1915e) in his first list; listed subsequently as "rare" (1919e, 188); and listed by Graham and Zeitlin (1921, 93). Moffat (1919c, 152) tells us of collecting a nest and five fresh eggs on May 23, 1916. Graham (1919b, 97) tells us of finding a nest containing one Gnatcatcher's and one Cowbird's egg on April 20, 1919. This nest was deserted when the young Cowbird hatched. Mr. Graham writes me that he observed one nesting pair near his camp at Lake Worth in early June, 1918. During 1911-1914 I noted Gnatcatchers frequently in midsummer, and took two specimens in juvenal feather in July, 1913.

Lanius ludovicianus Linnaeus. LOGGERHEAD SHRIKE.

Lanius ludovicianus is common, if not downright abundant, about Fort Worth during winter, and it may occasionally remain to nest. I did not record the species in midsummer in 1911-1914, however.

Vireo atricapillus (Woodhouse). BLACK-CAPPED VIREO.

Graham (1915e, 191) includes this species in his first list. It is not mentioned elsewhere in the literature at hand. I did not see it during 1911-1914 and, since neither breeding birds nor nest and eggs appear to have been taken we are obliged to accord it hypothetical ranking for the present.

48. *Vireo griseus noveboracensis* (Gmelin).¹⁶ NORTHERN WHITE-EYED VIREO.

Fairly common as a transient; less common as a summer resident; occasional in winter. Graham (1915e, 191) lists it, calling it "rare" (1919e, 187). Graham and Zeitlin (1921, 93) list it. During the spring of 1913 two pairs nested on a brushy hillside south of Forest Park in a district that is now residential. Graham (1915b, 104; 1916e, 81) writes of finding a nest with one egg on April 19, 1915, in which

¹⁶ As pointed out by Todd (*Auk*, 1933, 115 and *Wilson Bulletin*, 1926, 122) White-eyed Vireos from northern parts of the species' range are readily separable from southern birds. The northern form bears, therefore, the name bestowed by Gmelin when he described *Muscicapa noveboracensis*, *Syst. Nat.*, i, 1788, 947.

a Cowbird later laid two eggs thereby causing the Vireos to desert. Mr. Graham informs me that he observed three nesting pairs in the vicinity of his encampment at Lake Worth during June, 1918.

49. *Vireo belli belli* (Audubon). BELL'S VIREO.

Abundant. Many nests found during 1911-1914, most of them in bois d'arc hedges or at the heads of wooded gullies. During the spring of 1914 eleven nests were discovered, the first—in process of construction—on May 4, the last (with three fresh eggs) on May 30. The Cowbird was found to parasitize this species frequently.

Mr. Graham has found many nests during the course of his field-work. He writes me specifically of one with four eggs found along Wright's hedge, west of Fort Worth, May 17, 1916; of one with three young Vireos and a young Cowbird found June 27, 1916; and of one with four fresh eggs found July 8, 1916. He has published notes upon nests found May 13 to June 7, 1915 at Ben Brook (1916e, 82).

Vireo olivaceus (Linnaeus). RED-EYED VIREO.

Graham (1914b, 139) tells us of a "fresh nest of Red-eyed Vireo" found April 14, 1914, and includes the species in his first list (1915e, 191). He does not name it in his second list (1919e), however; nor do Graham and Zeitlin (1921) list it. Strecker (1912, 55) calls it a summer resident in eastern Texas "in the wooded regions." During 1911-1914 I recorded it at least twice as a transient, but did not note it in midsummer.

50. *Protonotaria citrea* (Boddaert). PROTHONOTARY WARBLER.

Mr. Graham informs me that Mr. Robert Carnihan of Fort Worth saw a pair of Prothonotary Warblers repeatedly at Lake Worth during the spring and summer of 1916. Mr. Carnihan watched the female go to her nest on several occasions. By this time the species probably has established itself in the drowned woodlands about Lake Worth.

Vermivora pinus (Linnaeus). BLUE-WINGED WARBLER.

Graham (1919e, 187) names this species in his second list, calling it "rare." Graham and Zeitlin (1921, 93) also list it. So far as I have been able to determine the nest and eggs have never actually been found, and I am not convinced that the bird has been seen in midsummer. Mr. Graham informs me that a female, carrying bark-strips, was noted during the summer of 1920, on Todd Island, in Lake

Worth. But since the female Blue-wing bears superficial resemblance to the female Prothonotary Warbler, I am inclined to wonder if the two species may not have been confused. At any rate we cannot give the present species full ranking here until more conclusive evidence of its nesting has been obtained.

51. **Geothlypis trichas trichas** (Linnaeus). MARYLAND YELLOW-THROAT.

Dr. Oberholser informs me that this race of Yellowthroat nests at Lake Worth at the present time. Messrs. Graham and Zeitlin inform me that they have seen it thereabouts repeatedly in summer. There is no specific reference to it in the literature before us. During 1911-1914 I noted it only as a transient.

52. **Icteria virens virens** (Linnaeus). YELLOW-BREASTED CHAT.

Rare. Not named in Graham's first list (1915e); called "rare" in Graham's second list (1919e, 187); listed by Graham and Zeitlin (1921, 93). I noted the species twice in summer during 1911-1914, but did not find a nest. It is very local in distribution. Strecker (1912, 60) accords *Icteria virens* practically State-wide distribution in summer, restricting *I. v. virens* to the eastern part, *I. v. auricollis* (Lichtenstein)¹⁷ to the western part. I have not examined breeding specimens from the Fort Worth region, but Dr. Oberholser assures me that the eastern race is the one found here.

53. **Passer domesticus domesticus** (Linnaeus). ENGLISH SPARROW.

Common in the city as well as in the rural areas. Most of the nests I found during 1911-1914 were built in relatively open situations in shade trees and not in crevices about buildings and bridges.

54. **Sturnella magna magna** (Linnaeus). EASTERN MEADOWLARK.

Dr. George B. Saunders, who has studied the distribution of the genus *Sturnella* exhaustively, informs me that "at about dusk on July 8, 1932" he "saw and heard four *magna* males singing about five miles west of the city [of Fort Worth] and collected one of these. . ." Continuing, he says: "*Neglecta* were probably present in this area, but

¹⁷ *Icteria virens longicauda* Lawrence of the Check-List. For change of name see van Rossem, *Auk*, 1934, 549; and *Trans. San Diego Soc. Nat. Hist.*, VII, No. 30, May 31, 1934.

as it happened I neither saw nor heard any. It is possible that in earlier times this entire district was held by *neglecta* but such is not the case now. I believe the history of *Sturnella* distribution in Tarrant County may be somewhat similar to that of the Fort Reno prairies of central Oklahoma where *magna* has gradually replaced *neglecta*." Dr. Saunders tells me there are breeding specimens of *magna* in the old Texas Geological collection which were taken north of Fort Worth, however.

Mr. Graham tells me that in early June, 1918, he recorded four nesting pairs of "Meadowlarks" about Lake Worth. These may well have been *magna*, particularly in view of the fact that the creation of Lake Worth may by that time have set up a distinctly new sum-total of ecological factors in the vicinity.

55. *Sturnella neglecta neglecta* Audubon. WESTERN MEADOWLARK.

Graham (1915e, 191; 1919e, 187) lists the "Meadowlark," calling it "common." Graham and Zeitlin (1921, 93) also list the "Meadowlark." The present species, *neglecta*, is not mentioned in these lists. Graham's description of the "Tickle my craw with a straw" song heard south of Fort Worth in May shows these individuals clearly to have been *neglecta*, however; and these birds had young in the nest at the time of his visit.

Since the parent birds were not collected we now have no way of knowing whether the nest found by Graham (1916e, 81) on April 27, 1915 (four eggs) was of *neglecta* or of *magna*. During 1911-1914 I collected no Meadowlark specimen in midsummer, though I saw a nesting pair of *neglecta* in the vicinity of Handley in July, 1913.

In my bewilderment over the distribution of *neglecta* and *magna* I consulted Dr. Saunders who, in a personal letter dated December 28, 1934, says: "In summarizing the brief data I have on Tarrant County I should say that both *magna* and *neglecta* nest . . . , *magna* being the more common of the two in the northern, eastern, and southern sections, *neglecta* being dominant in the western section."

Strecker (1912, 43) gives us the impression that he considers all Meadowlarks nesting west of the "counties bordering on the State of Louisiana" to be *neglecta*. Obviously such a distribution does not obtain at the present time, for breeding *magna* has been taken near Fort Worth by Saunders (see above).

The distribution of *Sturnella* in the Fort Worth region is a problem

that needs to be worked out in detail. The literature pertaining to the two species is in a state of confusion, the more so perhaps because the status of the two species may be changing as a result of destruction of the original prairie-lands in the interests of agricultural development.

56. *Agelaius phoeniceus phoeniceus* (Linnaeus). EASTERN REDWING.

Local, and not common. Graham (1915e, 191) includes it, calling it "common" (1919e, 187). Graham and Zeitlin (1921, 93) list it. During the spring of 1913 I found several pairs nesting about a small pond near the old bolt works near Handley. Graham (1916e, 82) tells us of finding a nest with four eggs in "tall grass" along a creek on May 17, 1915. He informs me that he found nests holding three and four eggs respectively on May 20 (in "snake weeds"), and on May 25, 1916.

57. *Icterus spurius* (Linnaeus). ORCHARD ORIOLE.

Common. Listed by Graham (1915e, 191; 1919e, 187) and by Graham and Zeitlin (1921, 93). Nests principally in mesquite, hackberry, bois d'arc, and sycamore. I found nests on May 28, 1913 (three fresh eggs); May 20, 1914 (four fresh eggs); and June 6, 1914 (four somewhat incubated eggs). Graham (1916e, 82) tells us of finding a nest with five eggs on May 23, 1915. He informs me that he found three occupied nests in mesquite trees on June 3, 1916, two of them with four slightly incubated eggs, one with five fresh eggs. I noted the species frequently about shade trees in the city during midsummer of 1911 and 1912.

Cassidix mexicanus major (Vieillot). BOAT-TAILED GRACKLE.

Graham (1915e, 191; 1919e, 187) includes the Boat-tailed Grackle in his lists. Graham and Zeitlin (1921, 93) also list it. This is a scarcely explainable mistake. I observed grackles closely while in the Fort Worth region and am convinced that the Bronzed Grackle is the only form that occurs there. The so-called Great-tailed Grackle, *C. m. mexicanus* (Gmelin), is known to nest at San Antonio, considerably to the southward of Fort Worth, and Graham¹⁸ himself describes this form as "twice the size of Purple and Boat-tailed Grackles." From this statement we realize that Mr. Graham could

¹⁸ Graham, Ramon. Great Tailed Grackle Very Tame. *Oölogist*, XXXVIII, No. 4, April, 1921, 42.

not have had a correct concept of the size of the Boat-tailed Grackle at the time he included it in his lists.

***Quiscalus quiscula quiscula* (Linnaeus). PURPLE GRACKLE.**

Graham (1915e, 191; 1919e, 187) and Graham and Zeitlin (1921, 93) list this subspecies, Graham calling it "rare" in his second list. The only grackles I saw or took about Fort Worth were Bronzed Grackles. It is my belief that the Purple Grackle never occurs in the region save possibly as a straggler from the East.

58. *Quiscalus quiscula aeneus* (Ridgway). BRONZED GRACKLE.

This subspecies, which is not mentioned by Graham (1915e; 1919e) nor by Graham and Zeitlin (1921) is fairly common, but local, at Fort Worth. Graham's several comments concerning "Boat-tailed," "Bob-tailed," and "Purple" Grackles all doubtless refer to this form (1915h, 211; 1919d, 188; etc.). I found a small colony nesting in a bois d'arc hedge near Handley during the summer of 1913, and had in my collection for years a set of four eggs collected by Mr. Graham on May 2, 1913 "seven miles east of Fort Worth." Mr. Zeitlin informs me that on July 6, 1916, he found a grackle nest twelve feet up in a mesquite tree "composed entirely of binder cord," and containing two newly hatched young. This nest was not part of a colony. The tree in which it had been built stood not far from Ellis Lake.

59. *Molothrus ater ater* (Boddaert). EASTERN COWBIRD.

Common. Listed by Graham (1919e, 187) and by Graham and Zeitlin (1921, 93). The species most commonly parasitized by it apparently are the Bell's Vireo, Lark Sparrow, Cardinal, and Painted Bunting. In the literature at hand we find reference to Cowbird eggs in nests of the White-eyed Vireo (Graham, 1915b, 104; 1916e, 81), Blue-gray Gnatcatcher (Graham, 1924a, 88), Blue Grosbeak (Graham, 1922a, 25), and Summer Tanager (Graham, 1919b, 197).

60. *Piranga rubra rubra* (Linnaeus). SUMMER TANAGER.

Graham (1915e) does not include this species in his first list. In his second list he calls it "rare" (1919e, 187). Graham and Zeitlin (1921, 93) include it. I recorded a nesting pair at Forest Park several times during the spring of 1912 and 1913. Graham (1918b, 140) tells us of a nest with eggshells found by Mr. Verlain Daniels on July 23, 1918 at Williams's Spring, Lake Worth. Again, (1919b, 97), he

writes of finding a pair building their nest on April 30, 1919. In this nest, on May 13, there were three Tanager eggs and one Cowbird egg.

Mr. Graham informs me that he has within recent years taken several sets of Summer Tanager eggs near Williams's Spring, most of the nests being in elm and sycamore trees; that he noted springtime arrivals from the South on April 18, 1916; and that the Blue Jay is the principal natural enemy of the Summer Tanager in the vicinity of Lake Worth.

61. *Richmondena cardinalis magnirostris* (Bangs). LOUISIANA
CARDINAL.

Abundant. Many nests found in 1911-1914: one with three young and an infertile egg on April 21, 1914; one with two small young on May 9, 1914; and one with three fresh eggs on May 28, 1914. I think three broods may regularly be reared in the region. Graham (1914b, 138) tells us of finding a nest with four eggs on April 13, 1915, a set of four eggs on April 19, and a set of four eggs on April 27, 1915 (1916e, 81); of discovering a "freak set" in which one egg was "solid brown" (1915c, 153); and of observing fully fledged young that were being fed by their parents (1924a, 88).

62. *Guiraca caerulea caerulea* (Linnaeus). EASTERN BLUE GROS-
BEAK.

Rare. Not included in Graham's first list (1915e); listed subsequently by this author as "rare" (1919e, 187); named by Graham and Zeitlin (1921, 93) in their list. Graham (1922a, 25) tells us of nests found on May 21, 1919 (two Grosbeak eggs and one Cowbird egg) and on June 15, 1919 (four Grosbeak eggs) that probably were built by the same pair of birds. Mr. Graham informs me that the species has nested regularly in the Lake Worth region in recent years. I did not record it during 1911-1914.

63. *Passerina ciris pallidior* Mearns. WESTERN PAINTED BUNTING.

Common. Listed by Graham (1915e, 191; 1919e, 187) and by Graham and Zeitlin (1921, 93). A pair nested in a small hackberry tree near the corner of Magnolia and Sixth Avenues in the city during the summer of 1912. On May 20 and 28, 1913, respectively, I found a nest, each with four eggs. In 1914 the species returned from the

South on about April 19; was "not yet common" by April 26; began nest-building toward the middle of May; and was laying eggs in latter May (four fresh eggs collected May 21). Another nest, with four slightly incubated eggs, was found June 5.

Mr. Graham writes me that he found a nest with three eggs on June 3, 1916; nests with one and four fresh eggs on June 27, 1916; and a nest with four fresh eggs on July 8, 1916. He has published an interesting account of the species as he has observed it in the Fort Worth region (1916d, 76); and of nests found May 5 and June 7, 1915 (1916e, 82).

64. *Spiza americana* (Gmelin). DICKCISSEL.

One of the commonest nesting species; abundant also as a transient. In 1914 I noted it first on April 23; recorded it as "very common" on April 30; and found a nest with six fresh eggs on May 9. Thereafter many nests were found, some in weeds but most of them near the ground in low shrubs. On May 23 I discovered eleven nests, most of them with five eggs. A nest with five perfectly fresh eggs was found June 1. Young just out of the nest were seen June 5.

Mr. Graham writes me that on June 3, 1916, he found a nest on the ground "under a thistle," that held four heavily incubated eggs. He has published notes upon eggs "spotted" with red-brown (1919b, 97; 1924a, 88); and upon nests found May 13 and 17, 1915, by Mr. Emmett Maxon and himself (1916e, 82).

65. *Ammodramus savannarum perpallidus* Coues.¹⁹ WESTERN GRASSHOPPER SPARROW.

Listed as "common" by Graham (1915e, 191; 1919e, 187); listed also by Graham and Zeitlin (1921, 93). During 1911-1914 it was very common on the prairies about the Texas Christian University campus. In 1914, I noted it first on April 21, saw many the following day, and discovered the first nest (one egg) on May 5. On May 10 I found a nest containing seven fresh eggs, possibly the product of two females. Graham (1916e, 82) tells us of nests found May 5 (four eggs), May 13 (four eggs), and June 7 (five eggs), 1915, by himself and his friend Mr. Emmett Maxon.

¹⁹ *Ammodramus savannarum bimaculatus* Swainson of the Check-List. For change of name see van Rossem, *Auk*, 1934, 549; and *Trans. San Diego Soc. Nat. Hist.*, VII, No. 30, May 31, 1934.

66. *Chondestes grammacus strigatus* (Swainson). WESTERN LARK SPARROW.

Abundant. Graham has published several notes upon it, among these one concerning a seven-day period of incubation which I think must be in the nature of a typographical mistake. Discussing this period he says (1924a, 88): "It takes a Lark Sparrow seven days to hatch a set of eggs and in twelve days after incubation starts the young are feathered." According to my own experience the period of incubation is twelve or thirteen days and the stub-tailed young leave the nest about eight or nine days after they have hatched.

During 1911-1914 I found scores of nests. In 1914, springtime arrivals from the South were noted on April 19, and several nests just ready for eggs were found on May 4. Many nests that I examined were on the ground under small bushes, bull nettles, or other weeds. A nest found June 4, 1914, held two runt eggs only.²⁰ Lark Sparrows were heard singing at night almost as frequently as were Mocking-birds during the height of the courtship period.

Graham (1916f, 137) writes of finding a nest with three Lark Sparrow and two Cowbird eggs on May 13, 1916. Mr. Graham tells me that he found three nests on June 26, 1916—two with four eggs and one with three eggs.

67. *Aimophila cassini* (Woodhouse). CASSIN'S SPARROW.

Not common, and decidedly local; listed as "rare" by Graham (1915e, 191; 1919e, 187); listed also by Graham and Zeitlin (1921, 93). During 1913 and 1914 I found it nesting in a restricted section of rocky prairie southwest of Texas Christian University. Here I watched the males giving their flight-songs day after day, took two specimens by way of identification, and found two nests—one with five fresh eggs on May 16, and one with four fresh eggs on May 20. Graham (1915g, 191) writes entertainingly of two nests found by him while he was searching for Black Vulture eggs. These nests, each of which contained four "incubated eggs," were found on April 12 and 13, 1915, in the "rugged hills northwest" of Fort Worth. Graham writes, too, of a nest with four eggs found on the "unusually late date" of May 5, 1915 (1916e, 82). In an early note from the Fort Worth region (1914b, 136) he tells of a nest with white eggs found

²⁰ These eggs are thought to be in the collection of Mr. J. Warren Jacobs, of Waynesburg, Pennsylvania, at the present time.

in early April, 1914, which may well have been of the present species though the eggs are said to have been "about the size of a Catbird's."

68. *Spizella pusilla pusilla* (Wilson). EASTERN FIELD SPARROW.

Uncommon and local; listed by Graham (1915e, 191; 1919e, 187) as "rare"; listed also by Graham and Zeitlin (1921, 93); not noted by me during the summer, 1911-1914. According to Graham (1914b, 139; 1916c, 34) the species returns from the South in March and nests in the "dry, hilly country" north or northwest of Fort Worth, where he found eggs as early as April 12 (two sets of four eggs; two sets of five eggs), April 13 (a set of five eggs), and April 14 (a set of four eggs) during the spring of 1914.

Mr. Graham informs me that he encountered two nesting pairs in the vicinity of his encampment at Lake Worth during early June, 1918.

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